

# Exhibit A

**中国精密机械进出口总公司**  
**CHINA NATIONAL PRECISION MACHINERY I/E CORP.**



# QW-1 MISSILE WEAPON SYSTEM

The QW-1 missile weapon system is a portable shoulder-fired, anti-aircraft weapon system against low and very low altitude targets by sudden attack in all directions. The target could be a high speed jet plane, a propeller-driven aircraft or an armed helicopter. It is a powerful weapon for air defense of pivotal points and covering field troops operation.

The QW-1 missile weapon system has been improved remarkably in fast reaction, attacking mode, guidance system, propulsion system, etc., while still retaining the main characteristics of previous portable anti-aircraft missiles, such as flexibility, maneuverability, easy operation and fire-and-forget homing. This missile weapon system, with excellent technical efficiency and combat performance, meets the needs of modern wars.

## 1. Leading features:

- All-direction engagement
- High reliability
- Accurate guidance
- High speed
- Powerful lethal effect
- Long storage life
- Max. lethal slant distance: 5,000m
- Min. lethal slant distance: 500m
- Conversion time from marching to operation: 10s
- Total weight of the weapon system: 16.5kg
- Weight of warhead: 1.42kg
- Length of missile-in-tube: 1,532mm
- Operating temperature: -40~+60°C
- Service life: 10 years



## 4. Technical performance of the missile

- Missile in tube
- Firing mechanism
- Ground battery
- Coolant gas cylinder unit
- Diameter of the missile: 71mm
- Length of the missile: 1,477mm
- Weight of the missile: 10.36kg
- Guidance system: IR homing
- Guidance law: proportional guidance plus target adaptive guidance self-spinning single-channel control
- Control system: 600m/s
- Velocity of the missile: 600m/s

## 3. Main tactical and technical performance

- Target: helicopters, propeller-driven airplanes, jet aircraft
- Max. lethal altitude: 4,000m
- Min. lethal altitude: 30m

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The FM-90 is a powerful missile weapon system against various air threats in low and very-low altitude. It has strong fire-power to intercept fixed wing aircrafts, helicopters, cruise missiles, air-to-ground missile threats.

## 1. Leading features

- Strong fire-power against massive attack
- Supper anti-jamming capability
- Multi-sensor engagement
- Sophisticated high performance missile
- Excellent very low altitude interception

age  
All-weather operation  
Performance improving based on serialization for potential threats

## 2. Main tactical and technical specifications

Operational range:	100~1,000m (against ground target) 700~11,000m (against 300m/s CM) 700~12,000m (against aircraft) 700~15,000m (against helicopter)
Operational altitude:	30~3,000m (against 600m/s AGM) 30~6,000m (against 300m/s CM)
Single shot kill probability:	30~6,000m (against aircraft and helicopter) ≥85% ≥20km( $r=0.1m^2$ )

- Max tracking range: 4-1
- Simultaneous target detection

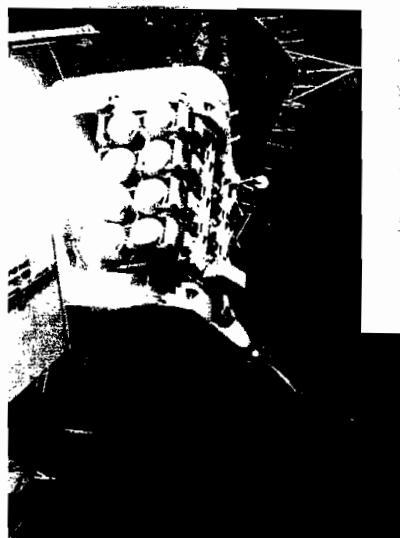
**24.** Simultaneous target detection quantity. Simultaneous target tracking quantity:

men  
The trailer quality  
System reaction time  
Max missile speed

• Max missile speed.  
• Max maneuverability.

FM-90(N) is a ship-to-air missile weapon system for naval applications.

...-S-1  
brought on board and destroy all that is capable of intercepting sea skimming anti-ship missiles.



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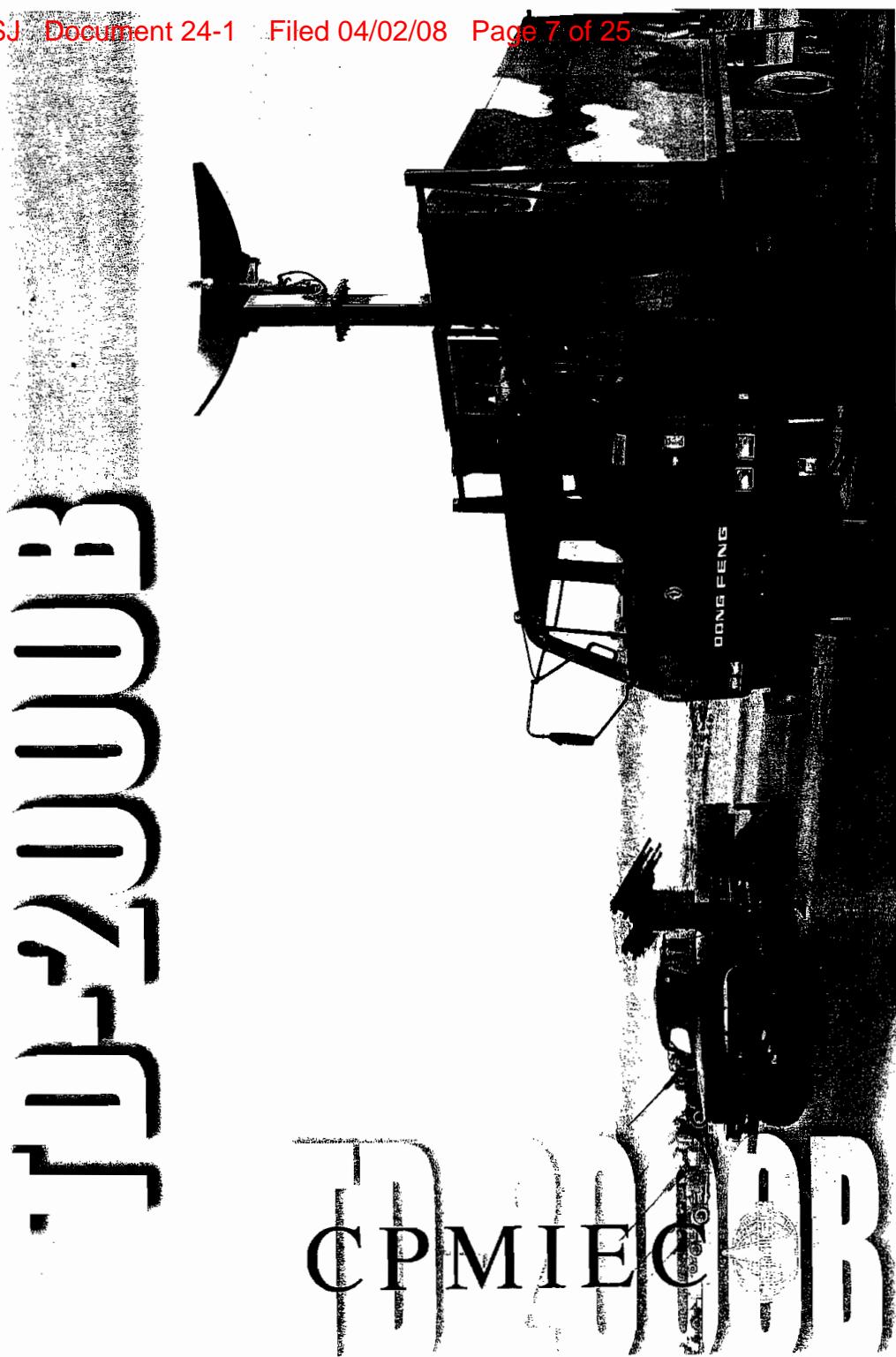
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DONG FENG



The TD-2000B missile-gun integrated weapon system is a low and very low altitude air defense weapon system, which is integrated by the QW series (MANPADs), 57mm gun and fire control & command vehicles, etc. TD-2000B can deal with low and very low altitude incoming targets, such as subsonic cruise missiles, fighters, bombers, armed helicopters and UAVs, etc. The TD-2000B weapon system is an automatic controlled system that improves the capabilities of individual weapon system and enhances the performance of whole weapon system. The system has different kinds of detection and tracking means such as radar, laser, optoelectronic and IR etc., which makes it possible to operate under the conditions of day and night, complex weather and strong electronic jamming.

### 1. Leading features

- Fast reaction
- High reliability
- Good maneuverability
- Excellent flexibility
- High effectiveness and low cost

### 2. Main tactical and technical performance

• Detection airspace	•
<input checked="" type="checkbox"/> Target designation radar	≥40km
<input checked="" type="checkbox"/> Optoelectronic tracker	
• Detection range:	
•     Tracking range:	≥9 ~ 15km
• Operational range:	≥7 ~ 15km
• Operational altitude:	500 ~ 6,000m
• Reliability and maintainability	
<input checked="" type="checkbox"/> MTBF	30 ~ 4,000m
<input checked="" type="checkbox"/> MTBF	≥100h
<input checked="" type="checkbox"/> MTBF	≥250h
• MTTR	≤0.5h
• Operation temperature:	
• System composition	
• Target designation radar:	1
• LD fire control command vehicle:	1
• LD missile launching vehicle (Octuple):	1 ~ 2
• 57mm gun:	6



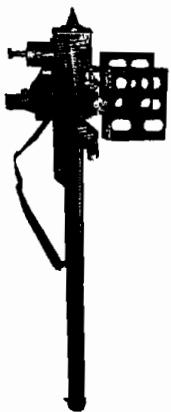
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Adopted advanced four-element mid-infrared detector and pulse tracking system and update digital technology, FN-6 missile weapon system is a new generation of MANPAD. It characterizes easy operation, effective interception, fire-and-forget and compatible with multi-launching platforms. It also features excellent anti-jamming capability against background interference and infrared decoys. The FN-6 missile is engaged with a versatile application prospectly by mounting on vehicles, small vessels or helicopters in different configurations. The FN-6 missile weapon system is mainly employed in army divisions or regiments to undertake air defense for forward field and rear vital place and provide covering & protection for the marching troops.



### 1. Leading features

- All-direction engagement
- High reliability
- Excellent anti-jamming capability
- Advanced guidance technology to enhance accuracy
- Powerful lethal effectiveness

### 2. Main tactical and technical performance

Type of target: fighter, fighter-bomber, strike airplane, armed helicopter and other air targets

Min. interception altitude:	15m
Max. interception altitude:	3,800m
Min. interception range:	500m (tail-on)
Max. interception range:	800m (head-on)
Missile length:	5,500m
Missile diameter:	1.495mm
Missile weight:	71mm
Flight speed:	10.77kg
Max. maneuverability:	≥600m/s
Combat reaction time:	18g
Total weight of weapon system:	≤5s
Anti-jamming capability:	≤17kg
Resistance to background and ground object interference:	Resistance to background and ground object interference, Counter infrared decoy, Counter infrared modulation jamming
Operational temperature:	-40 ~ +50°C

### 3. Composition

The basic operation equipment of FN-6 missile weapon system consists of missile-in-tube, fire unit and ground power supply. The optional equipment includes optical sight, IR imager, sight and IFF (friend or foe identifier). In order to meet the requirements of operation training and improve the operation effectiveness, the training devices of operation, aiming and firing and a comprehensive test vehicle are available.



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The QW-2 is a new generation of man-portable IR passive homing anti-aircraft missile weapon system. Which is used to intercept invading fighters, attackers, armed helicopter, unmanned reconnaissance aircraft and cruise missile at low and very low altitude to carry out field battle or critical area air defense. It has excellent detective capability, guidance accuracy, target destroying capability, night operation performance as well as very easy, simple and reliable operation advantage. The most outstanding is that the latest anti-infrared interference technology is applied to the system, therefore the missile can be used effectively against every kind of artificial IR jammers and IR flares in the course of firing and attacking.

### 1. Leading features

- Larger attacking zone
- Excellent anti-jamming ability
- Direct aiming and firing
- Effective initial guidance
- Fully new terminal guidance
- Powerful lethality
- Firing motor left in tube
- Effective night operation

Filed 04/02/08 Page 12 of 25

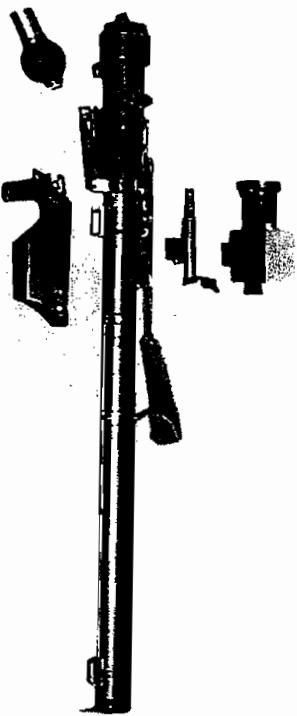
### 2. Main tactical and technical specifications

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- Max. target speed
- Target altitude
- Target slant distance
- Time ready to fire
- Missile speed:
- Single shot killing probability
- Manouverable overload:

- 400m/s (head-on)  
320m/s (tail-on)
- 10~4,000m
- 500~6,000m
- less than 5s
- more than 25m/s  
600m/s(at endurance)
- 75%
- 16g(average)  
18g(max.)

• Missile weight	11kg	• Anti-jamming capability
• Missile length	1,590mm	against background jamming
• Missile diameter	72mm	against electromagnetic wave
• System weight	18.4kg	against artificial IR jammer
• Environment temperature	-40~+55°C	against artificial IR flares
• Service life	10 years	against jamming actively
		against jamming in the whole procedure
		against jamming continuously
		against multiple flares



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# THE CPMIEC GROUP

The FL-2000 weapon system is a short-range vehicular low and very low altitude air defense missile weapon system. It can effectively counter the targets such as aircraft, armed helicopter, unmanned aerial vehicle and cruise missile.

With strong maneuverability, FL-2000 weapon system is not only used for the field air defense of army, but also used for the last intercept in the air defense system to improve the operational capability and survival capability. Adopted with the passive optoelectronic tracker, the system can resist all electronic jamming and is applicable to operating under "electronic warfare" environment.

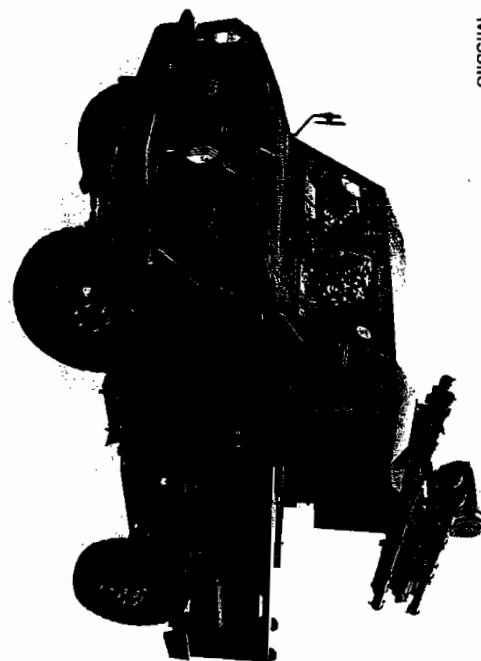
The FL-2000 weapon system is capable to integrate with antiaircraft gun into missile-gun system in order to perform integral command & control and possess high operational effectiveness.

### 1. Main tactical and technical specifications

	FL-2000(V1)	FL-2000(V2)
Type	Land based, mounted on armed vehicle	Land based, mounted on jeep or truck, passive combat
Compatibility	Various IR homing missiles (MANPADS)	
Operational airspace	Depending on the IR homing missiles	
Guidance system	Passive IR homing guidance	
Guidance mode	Proportional guidance law	
System reaction time	≤ 8 seconds	5 ~ 8 seconds
Launching mode	8 missile-in-container, oblique launching	
Radar detection range	18km ( $\sigma = 1m^2$ )	—
Tracking range of IR tracker	13.5km	—
FOV of TV tracker	1.5° x 2.7°	—
Laser range finder	13.5km	—
Search airspace of IR system	—	90° x 25°
Detection range of R system	—	10km
Operational temperature		-40 ~ +55° C
Relative humidity		≤ 98% (20±5° C)

### 2. Composition

- Target search system (search radar and/or IR search system)
- Optoelectronic tracking-illumination system
- Command and control system
- Launcher turret system
- Power supply and distribution system
- Vehicle system
- Missile



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The A100 MLRS is an advanced simple-controlled rocket system characterized by fast reaction, long range, high accuracy and high density fire-power. Its mission is to precisely attack and destroy enemy's group and area targets, such as military bases, massive armored troops, missile launching sites, large airports, important harbors and other important facilities.

### 3. Leading features of A100 MLRS

Fast reaction

Long range

High accuracy

Concentrated firepower

Different munitions

GPS positioning and orientating

High mobility

Automatic measurement of ground meteorology

### 2. System composition

Rockets

Launching-tube pack

Launching truck

Transport/loading trucks

Command truck

### 3. System specifications

Max. range: 80/90/120km

Min. range: 40/45/60km

Ground density at max. range: ≤1/300

Weight of warhead: 200 kg

Rockets per launcher: 10 rounds



- Salvo time of 10 rockets: 1 min.
- Preparation time: 8 min.
- Withdrawal time: 2 min.
- Re-load time: 20 min.
- Max. mobile range: 650 km
- Max. marching speed: 80 km/h
- Ambient temperature: -40~50°C
- Applicable altitude: ≤3,000m
- Shelf-life: 10 years



### 4. Launcher truck features

· Load capability: 22t

· Global positioning system and orientating system

· Self-positioning and self-orientating

· Automatic aiming, loading and launching

### 5. Transporting/loading truck features

· Load capacity: 22t

· On-board hoist for the fast, automatic reloading

· Rockets inside the launch-tubes for storage and transportation

· Every three or four tubes compose one stack



### 6. Rocket features

· Diameter: 301mm

· Length: 7,300mm

· Total weight: 840kg

· Warhead weight: 200kg

· Standard munitions: anti-armor/anti-personnel cluster

· Other munitions available

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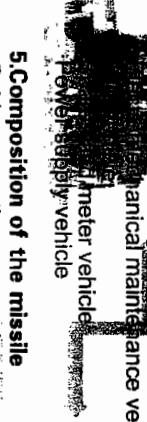
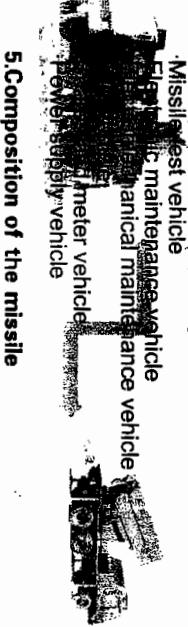
# LY-60 MEDIUM RANGE SYSTEM

The LY-60 is a medium altitude surface-to-air missile weapon system. It is highly automatic and capable of countering passive and active jamming. The system adopts continuous wave semi-active homing guidance to achieve high guidance accuracy.

The LY-60 missile has excellent very low altitude performance to attack high maneuvering aircraft and sea-skimming missiles. It is quite flexible for system configuration and ideal for field air defense.

## 1. Leading features

High reaction time  
Short reaction time  
High guidance accuracy  
High lethality  
High reliability  
Superior anti-jamming capability  
High automation  
Fast deployment  
Easy maintenance with on-line





# FT-2000 MISSILE WEAPON SYSTEM

The FT-2000 is a sophisticated surface-to-air, anti-radiation missile weapon system adopting passive detection and passive guidance to make multi-target engagement against various air radiations. Its mission is to intercept jamming planes, self-screening jamming planes and air radiation sources.

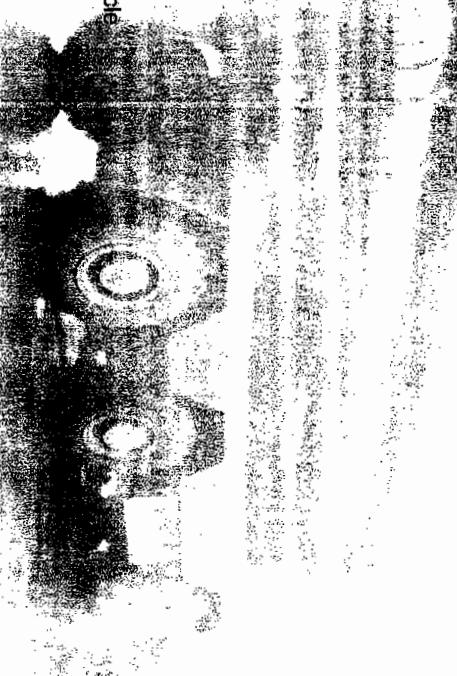
The FT-2000 can form an independent air-defense anti-radiation missile weapon system with its passive guidance stations and launching devices, or can be integrated with other air-defense missile weapon systems. The missile, with a wide beam seeker, can capture the target by itself, when necessary, and perform air-defense firing with a single launcher.

## 1. Leading features

- All air space coverage
- Applied for air-defense of field operation
- High reliability and mobility
- Super anti-jamming capability
- Excellent guidance system and multi-target capability

## 2. Main tactical and technical specifications

· Operational range:	12~100km
· Operational altitude:	3~20km
· Missile weight:	1,300kg
· Missile length:	6.8m
· Missile diameter:	466mm
· Operation band of seeker:	2~18GHz
· Launching mode:	vertical launching from vehicle



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The WS-1 Multiple Launch Rocket System (MLRS) is an advanced free rocket system characterized by long range, fast reaction, high accuracy and low cost. The rocket can complete battle mission in a battery unit or with a single launching truck, and attack hostile targets far behind front lines with maximum efficiency. It is mainly used to make a destructive attack on enemy's military bases, massive armored troops and other important facilities.

### 1. Leading features

- High maneuverability
- Short reaction time
- Easy operation
- High safety
- High reliability

### 2. Composition

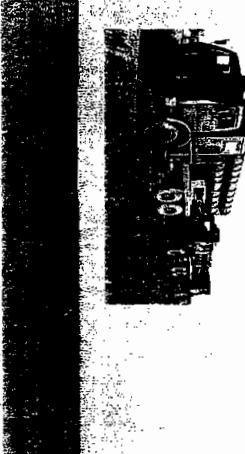
- Free rockets
- Command truck
- Launching trucks
- Transport&loading trucks

### 3. Main tactical and technical specifications

	WS-1	WS-1B
System reaction time:	20min.	
Number of launch tubes	4	
Launch mode:	Salvo or single shot	
Firing range:	40 ~ 100km	60 ~ 180km
Max. flight altitude:	40km	60km
Max. velocity:	Ma 4.2	Ma 5.0
Max. acceleration:	50g	55g
Length of rocket:	4,732mm	6,376mm
Diameter of rocket:	302mm	
Take-off weight:	524kg	735kg
Weight of warhead	150kg	
Error of probability:	1%	1% ~ 1.25%



1. WS-1 rocket 2. fuse 3. Drag ring 4. Warhead  
5. Solid propellant rocket motor 6. Tail section



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The QW-18 is a portable air-defense weapon system with anti-infrared jamming capability omnidirectionally against low and very low altitude air targets with a flight speed of no more than 300m/s. QW-18 is used for the air defense to the motorized infantry, armed forces, artillery and paratroops, as well as to the important battle field or critical places such as command center, bridge, airport and ferry. QW-18 is capable to integrate with other air defense weapon systems to establish a complete air defense system. It can be extended into air-to-air missile, ship-to-air missile on the small naval vessels and missile-gun air defense weapon system.

### 1. Leading features

- High capability against IR jamming
- All-weather operation
- Accurate and lethal against air targets
- Omnidirectional interception
- Large attack zone
- Easy operation
- Quick deployment
- Good survivability
- Multi-mission

### 2. Main tactical and technical performance

- Type of target: Fighter, attacker, bomber, armed helicopter and air-borne transport airplane
- Launch mode: Shoulder-fired
- Mode of attacking targets: Omni-direction, Anti-jamming capability
- Target speed: ≤300m/s
- Missile speed: 600m/s
- Interception altitude: 10 ~ 4,000m
- Lethal slant range: 500 ~ 5,000m
- Max. overload: 16g
- Conversion from matching to operation: ≤10s
- Self-destruction time: 14~18s
- Total system weight: 18kg
- Launch tube weight: 4kg
- Firing unit weight: 1.7kg
- Operation temperature: -40°C ~ +60°C
- Shelf life: 10 years



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